

# NUCLEIC ACID SEQUENCING USING CHARGE-SWITCH NUCLEOTIDES

## ABSTRACT OF THE DISCLOSURE

The present invention provides compounds, methods and systems for sequencing nucleic acid using single molecule detection. Using labeled NPs that exhibit charge-switching behavior, single-molecule DNA sequencing in a microchannel sorting system is realized. In operation, sequencing products are detected enabling real-time sequencing as successive detectable moieties flow through a detection channel. By electrically sorting charged molecules, the cleaved product molecules are detected in isolation without interference from unincorporated NPs and without illuminating the polymerase-DNA complex.

SF 1232687 v1